
Analytical Report	
Title	**Lemon Sicily** Essential Oil Profile by GC-MS
Report No.	SE-37270-18
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Notebook reference	III-29-75
Contributors:	
Quote No.	
Requester	Blue World Naturals LLC

Primary Aim

To identify GC amendable volatile organic compounds present in submitted **Cardamom** essential oil sample.

Samples

The sample arrived as clear liquid with characteristic odor labeled as "Lemon Sicily lot 11081-b47".

Experimental:

1. Oil was dissolved in methanol to concentration of ~0.1%, 1 ul injected into the GC injector port.

2. GC conditions:

Injector temperature:	250 C
Initial oven temperature:	80 C
Ramp	10 C/min
Final temperature	220 C
Final temperature hold	5 min

3. MS parameters

Ionization and ion polarity	EI+
Scan rate	2 scans/sec
Mass range	35-350 Da
Ion source temperature	150C
Transfer line temperature	280C

4. GC-MS analysis. Waters/Micromass Quatro GC mass spectrometer interfaced to a ThermoElectron Trace gas chromatograph was utilized for the analysis. 30m 0.25 mm ID DB-5 column was used to separate components. Carrier gas was helium at 1.1 ml/min with split ratio of 50.

5. Data treatment.
For each sample, a set of target components was identified with the aid of the AMDIS software[1].The components were identified using the NIST mass spectral library[2].

Deliverables

1. GC-MS chromatogram. GC-MS chromatogram is shown in Appendix I.

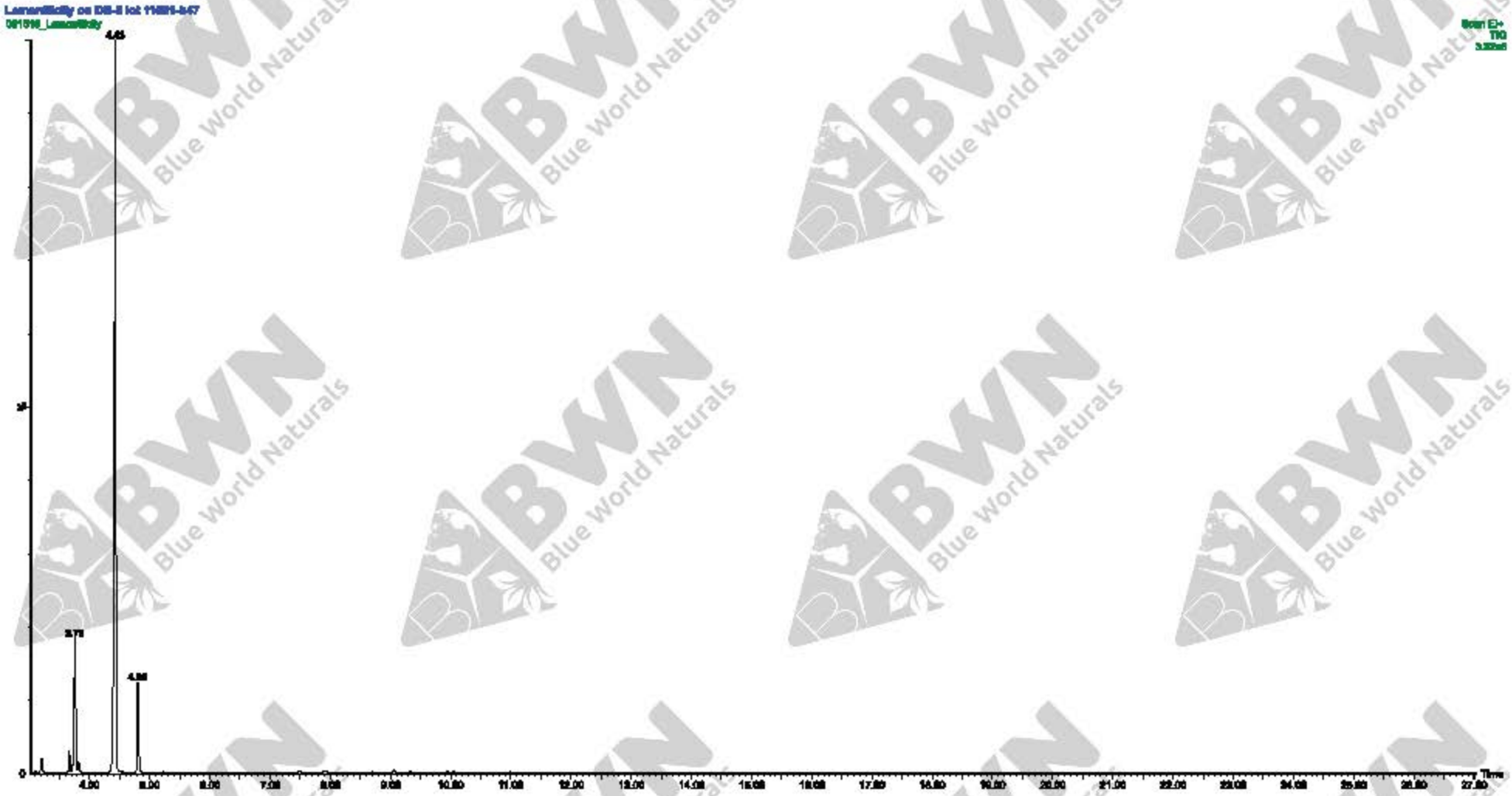
2. Appendix II lists library search results.

- RT Retention Time, time in minutes at which the compound elutes out of column
- CAS. CAS registry number or EPA number.
- Name. IUPAC or common name of identified compound.
- Area. Peak area of a component in %% to total ion count

1 http://chemdata.nist.gov/mass-spc/amdis/
2 http://www.nist.gov/srd/nistla.cfm

APPENDIX I
Lemon Sicily
GC-MS Chromatogram

Sample “Lemon Sicily”



APPENDIX II
Lemon Sicily
Identified Compounds

Lemon Sicily

CAS	Name	R.T.	Area
28634-89-1	Thujene	3.081	0.2
80-56-8	alpha-pinene	3.187	1.4
79925	Camphene	3.404	0.1
3387415	Bicyclo[3.1.0]hexane, 4-methylene-1-(1-methylethyl)-	3.647	1.6
127913	alpha-Pinene	3.739	14.0
123353	ß-Myrcene	3.799	1.1
99865	1,3-Cyclohexadiene, 1-methyl-4-(1-methylethyl)-	4.233	0.0
99865	1,3-Cyclohexadiene, 1-methyl-4-(1-methylethyl)-	4.233	0.1
527844	Benzene, 1-methyl-2-(1-methylethyl)-	4.335	0.3
138863	Limonene	4.408	71.1
99854	1,4-Cyclohexadiene, 1-methyl-4-(1-methylethyl)-	4.787	8.0
586629	Cyclohexene, 1-methyl-4-(1-methylethylidene)-	5.205	0.2
98555	3-Cyclohexene-1-methanol, α,α4-trimethyl-	6.884	0.1
106263	2,6-Octadienal, 3,7-dimethyl-, (Z)-	7.467	0.3
141275	2,6-Octadienal, 3,7-dimethyl-, (E)-	7.884	0.3
3404737	1-Pentene, 3,3-dimethyl-	8.097	0.0
3404657	3-Methyl-3-hexene	8.686	0.1
141128	2,6-Octadien-1-ol, 3,7-dimethyl-, acetate, (Z)-	9.038	0.4
105873	2,6-Octadien-1-ol, 3,7-dimethyl-, acetate, (E)-	9.303	0.3
118650	Bicyclo[7.2.0]undec-4-ene, 4,11,11-trimethyl-8-methylene-,[1R-(1R*,4Z,9S*)]-	9.935	0.1
26560145	1,3,6,10-Dodecatetraene, 3,7,11-trimethyl-, (Z,E)-	10.039	0.1
495614	Cyclohexene, 1-methyl-4-(5-methyl-1-methylene-4-hexenyl)-, (S)-	10.969	0.2